

What is claimed is:

1. A circuit board assembly which comprises:

5 an electrically insulating layer;

a conductive printed wiring layer formed on the surface of said electrically insulating layer and including a plurality of conductive paths;

10 a conductive trace on said electrically insulating layer and means for dissipating a transient;

a surface mount resistor fixed in relation to said trace.

15 2. The circuit board assembly as described in claim 1 wherein said surface mount resistor has opposed generally planar lips.

3. The circuit board assembly as described in claim 1 wherein said surface mount resistor has a generally planar lips and said trace is also generally
20 planar.

4. The circuit board assembly as described in claim 1 wherein said surface mount resistor has a generally planar lower lip, said trace is also generally planar and said lower lip and said trace are generally parallel.
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5. The circuit board assembly as described in claim 2 wherein said generally planar lips of said surface mount resistor are closer to said trace than the thickness of said surface mount resistor.

30 6. The circuit board assembly as described in claim 2 wherein said lips and said trace are parallel.

7. The circuit board assembly as described in claim 4 wherein a single geometric plane extends through substantially all of said lips and all of said trace.

5 8. A circuit board assembly as described in claim 7 wherein the lower surface of said lips and the lower surface of said trace are substantially coplanar.

9. A circuit board assembly as described in claim 7 wherein the upper surface of said lower lip and the upper surface of said trace are substantially coplanar.

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10. A circuit board assembly as described in claim 7 wherein the lower surface of said lower lip and the lower surface of said trace are substantially coplanar and in addition the upper surface of said lip and the upper surface of said trace are substantially coplanar.

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11. A circuit board assembly as described in claim 10 wherein said surface mount resistor has a height of t and the spacing between said lip and said trace is less than t .

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12. A circuit board assembly as described in claim 11 wherein the spacing between said lip and said trace is no more than one half t .

13. A circuit protection system which comprises:

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a conductive trace and means for dissipating a transient;

a surface mount passive component having opposed end caps, each of said end caps including a lip, each lip being disposed in spaced relationship to said conductive trace.

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14. The circuit protection system as described in claim 13 wherein said lips have respective edges thereof which are mutually parallel.

15. The circuit protection system as described in claim 13 wherein each lip is generally planar and said trace is also generally planar.

16. The circuit protection system as described in claim 13 wherein each lip is a generally planar lip, said trace is also generally planar and said lips and said trace are generally parallel.

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17. The circuit protection system as described in claim 16 wherein an edge of each lip is approximately .01 inch from said trace.

18. The circuit protection system as described in claim 13 wherein respective
10 surfaces of said lips and said trace are parallel.

19. The circuit protection system as described in claim 18 wherein each generally planar lip of said surface mount passive component is closer to said trace than the thickness of said surface mount passive component.

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20. An alarm system that includes a circuit board assembly which comprises:

an electrically insulating layer;

20 a conductive printed layer formed on the surface of said electrically insulating layer and including a plurality of conductive paths;

a conductive trace on said electrically insulating layer and means for dissipating a transient;

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a surface mount resistor fixed in closely spaced relation to said trace.

21. The alarm system as described in claim 20 wherein said surface mount resistor has opposed generally planar lower lips.

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22. The alarm system as described in claim 20 wherein said surface mount resistor has opposed generally planar lower lips and said trace is also generally planar.

23. The alarm system as described in claim 20 wherein said surface mount resistor has opposed generally planar lower lips, said trace is also generally planar and said lower lips and said trace are generally parallel.

5 24. The alarm system as described in claim 20 wherein said generally planar lower lips of said surface mount resistor is closer to said trace than the thickness of said surface mount resistor.

10 25. The alarm system as described in claim 20 wherein said surfaces of said lips and said trace are parallel.

15 26. The alarm system as described in claim 20 wherein said generally planar lips of said surface mount resistor are spaced no more than .01 inch from said trace.

27. A circuit board assembly which comprises:

an electrically insulating layer;

20 a conductive printed wiring layer formed on the surface of said electrically insulating layer and including a plurality of conductive paths;

a conductive trace on said electrically insulating layer and means for dissipating a transient;

25 a first surface mount resistor fixed in closely spaced relation to said trace;

a second surface mount resistor fixed in closely space relation to said trace.

30 28. The circuit board assembly as described in claim 27 wherein each of said surface mount resistors has opposed generally planar lips.

29. The circuit board assembly as described in claim 27 wherein each of said surface mount resistors has a generally planar lips and said trace is also generally planar.

5 30. The circuit board assembly as described in claim 27 wherein each of said surface mount resistors has a generally planar lower lip, said trace is also generally planar and all of said lower lips and said trace are generally parallel.

10 31. The circuit board assembly as described in claim 27 wherein said generally planar lips of said surface mount resistors are closer to said trace than the thickness of said surface mount resistors.

32. The circuit board assembly as described in claim 28 wherein said lips and said trace are parallel.

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33. The circuit board assembly as described in claim 32 wherein a single geometric plane extends through substantially all of said lips and all of said trace.

20 34. A circuit board assembly as described in claim 33 wherein the lower surface of said lips and the lower surface of said trace are substantially coplanar.

25 35. A circuit board assembly as described in claim 33 wherein the upper surface of said lower lips and the upper surface of said trace are substantially coplanar.

30 36. A circuit board assembly as described in claim 33 wherein the lower surface of said lower lips and the lower surface of said trace are substantially coplanar and in addition the upper surface of said lips and the upper surface of said trace are substantially coplanar.

37. A circuit board assembly as described in claim 33 wherein said surface mount resistor has a height of t and the spacing between each of said lips and said trace is less than t .

5 38. A circuit board assembly as described in claim 37 wherein the spacing between each of said lips and said trace is no more than one half t .

39. A circuit board assembly as described in claim 27 wherein the distance between said first and second resistors is greater than the height of each
10 resistor.

40. A circuit board assembly as described in claim 28 wherein the distance between said first and second resistors is greater than the height of each
15 resistor.

41. A circuit board assembly as described in claim 29 wherein the distance between said first and second resistors is greater than the height of each resistor.

20 42. A circuit board assembly as described in claim 30 wherein the distance between said first and second resistors is greater than the height of each resistor.

43. A circuit board assembly as described in claim 31 wherein the distance between said first and second resistors is greater than the height of each
25 resistor.

44. A circuit board assembly as described in claim 32 wherein the distance between said first and second resistors is greater than the height of each
30 resistor.

45. A circuit board assembly as described in claim 33 wherein the distance between said first and second resistors is greater than the height of each resistor.

46. A circuit board assembly as described in claim 34 wherein the distance between said first and second resistors is greater than the height of each resistor.

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47. A circuit board assembly as described in claim 35 wherein the distance between said first and second resistors is greater than the height of each resistor.

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48. A circuit board assembly as described in claim 36 wherein the distance between said first and second resistors is greater than the height of each resistor.

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49. A circuit board assembly as described in claim 38 wherein the distance between said first and second resistors is greater than the height of each resistor.

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50. A circuit board assembly as described in claim 27 wherein the distance between said first and second resistors is at least three times the height of each resistor.

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51. A circuit board assembly as described in claim 21 wherein the distance between said first and second resistors is at least three times the height of each resistor.

52. A circuit board assembly as described in claim 29 wherein the distance between said first and second resistors is at least three times the height of each resistor.

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53. A circuit board assembly as described in claim 30 wherein the distance between said first and second resistors is at least three times the height of each resistor.

54. A circuit board assembly as described in claim 32 one wherein the distance between said first and second resistors is at least three times the height of each resistor.

5 55. A circuit board assembly as described in claim 32 wherein the distance between said first and second resistors is at least three times the height of each resistor.

10 56. A circuit board assembly as described in claim 33 wherein the distance between said first and second resistors is at least three times the height of each resistor.

15 57. A circuit board assembly as described in claim 34 wherein the distance between said first and second resistors is at least three times the height of each resistor.

20 58. A circuit board assembly as described in claim 35 wherein the distance between said first and second resistors is at least three times the height of each resistor.

60. A circuit board assembly as described in claim 37 wherein the distance between said first and second resistors is at least three times the height of each resistor.

25 60. A circuit board assembly as described in claim 38 wherein the distance between said first and second resistors is at least three times the height of each resistor.

30 61. A circuit board assembly as described in claim 39 wherein the distance between said first and second resistors is at least three times the height of each resistor.